FIG. 210.—Left humerus. Anterior view.

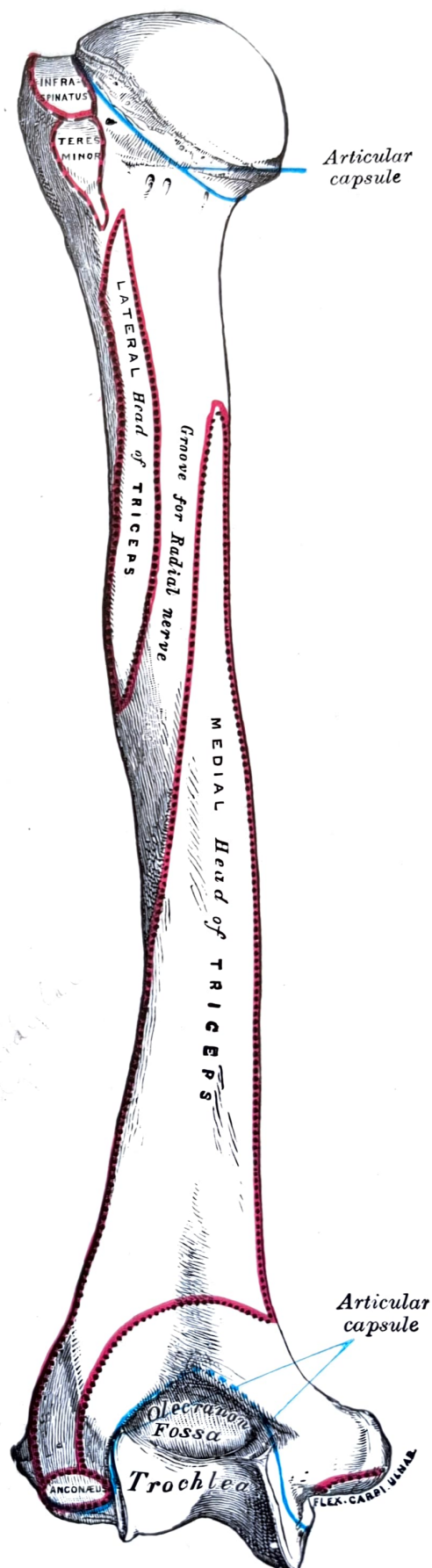
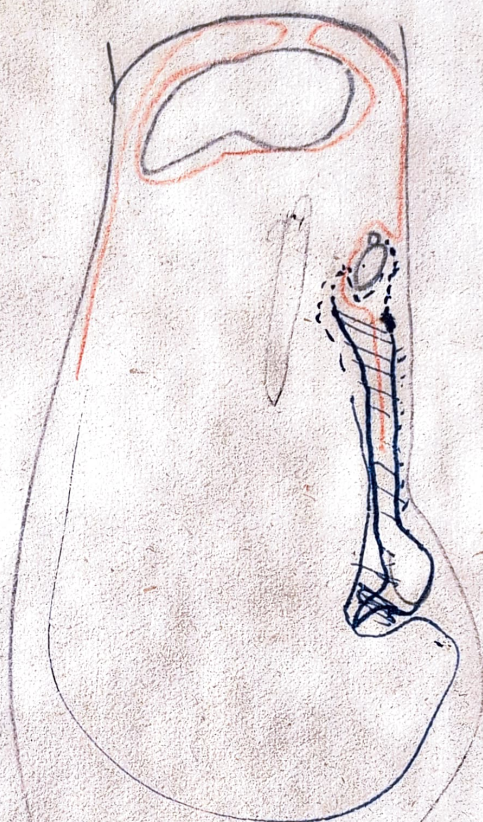



FIG. 211.—Left humerus. Posterior view.

3" to left
Pancreas
Transverse colon
Stom

Orbits

Orbits are 2 pyramidal cavities situated in the upper + anterior part of the face, their bases being directed forward + lateralward, apices backward + medialward. Each presents a roof, floor, medial + lateral wall, a base + an apex.

Roof is concave + formed in front by orbital plate of frontal; behind by small wing of sphenoid.

Floor is formed chiefly by orbital surface of maxilla. Running forward near the middle of the floor is the infraorbital groove (trans. infraorbital nerve + vessels)

Medial wall is formed by frontal process of maxilla, lamina papyracea of ethmoid, & a small part of the body of sphenoid. In front is seen the lacrimal groove, which lodges the sac. In the frontoethmoidal suture are seen the ant. + post. ethmoid foramina trans. the nasociliary + ant. ethmoidal vessels, the latter the post. ethmoidal nerve + vessels.

Lateral wall is formed by the orbital process of the zygomatic & the orbital surface of the great wing of the sphenoid.

Between the roof + lateral wall near apex is the sup. orbital fissure which trans. oculomotor, trochlear, abducent + ophthal. div. of trigem. nerve. orbital meningeal vessels.

The lateral wall + floor are separated post. by the inf. orbital fissure which transmits maxillary nerve.

Base is formed above by supraorbital arch of frontal bone in which is the supraorbital notch or foramen for passage of supraorbital vessels + nerves; below

by the zygomatic bone & maxilla; laterally by the zygomatic bone + zyg. process of frontal; medially by the frontal process of max + frontal bone.

apex is situated at the back of the orbit + corresponds to the optic foramen which trans. the optic nerve & opthalmic artery.

Middle fossa

Is bounded in front by small wing of sphenoid, & ant. clinoid process; behind by the petrous portion of the temporal & dorsum sellae; laterally by the temporal squama, sphenoid angle of the parietals, & the great wing of the sphenoid.

The middle part of the fossa presents in front the chiasmatic groove & tuberculum sellae, behind which is the fossa hypophyseos & presents on its ant. wall the middle clinoid process. The fossa hypophyseos is bounded in back by the dorsum sellae on which are the post. clinoid processes, which give att. to tentorium cerebelli. On either side of this fossa is the carotid groove. The lateral parts of the fossa support temporal lobe of brain, marked by depressions for convolutions & furrows for the middle meningeal vessels.

Following apertures are also to be seen:
sup. orbital fissure. (trans. nerves to eye also oph. arteries)
Behind sup. orbital fissure is foramen rotundum. (max nerve)
Behind & lateral to fora. rotund. is the foramen ovale, which trans. mandib. nerve, acc. meningeal artery, & lesser super. petro. nerve.
Medial to fora. ovale is foramen vesalii (trans. small vein)
lateral " " " " " spinosum (T. midd. men. & small vein)
medial " " " " " lacerum which trans. int. carotid, the nerve of pterygoid canal & men. br. of ascending pharyngeal artery.
Behind & a little lateral to foramen spinosum is the hiatus of the facial canal which trans. greater super. petrosal nerve, & petrosal br. of middle meningeal artery.

Muscle	Nerves	Arteries
Trapezius	Spinal accessory Branches of 3 & 4 cervical	ascending & descending } Transverse cervical
Latissimus dorsi	6-7-8 cervical nerves, through thoracodorsal nerve	descending transverse cervical & thoraco-dorsal
Rhomboideus	Dorsal scapular & 5th cervical	decending tr. cervical
Levator scapula	3 & 4 cervical	decending tr. cervical.
Serratus posterior superior	Intercostals nerves	" "
Serratus posterior inferior	Intercostal nerves	" " "
Iliocostalis	Posterior primary divisions of spinal nerves. (cervical, thoracic, & lumbar)	Posterior ramus of lumbar arteries
Longissimus	"	"
Spinalis	"	"
Semispinalis	"	Profunda cervicalis from costocervical trunk. (sub. clav)
Splenii	Lateral branches of the posterior division of middle & lower cervical nerves	
Pectoralis major & minor	Medial & lateral anterior thoracic nerves. 8th cervical 1st thoracic	Thoracoacromial - Lateral thoracic - highest thoracic
Subclavius	Branches of 5th & 6th cervical	clavicular branch of thoracoacromial.
Serratus anterior	Long thoracic (derived from 5-6-7 cervical nerves)	Lateral thoracic
Platysma	cervical branch of facial nerve	sub-mental (maxillary)

Reading for Dissection of Shoulder, Arm, Forearm and Hand

1. Osteology 205-227 (Read carpal bones once)
2. Acromio Clavicular Articulation 311-331 (Read V11 326-331 once)
3. Muscles and Fasciaes of Shoulder 437-464
4. Subclavian Artery 576-579
5. The Axilla Axillary Vessels etc. 586-599
6. Veins of Upper Extremity and Thorax 660 to Veins of Thorax 664
7. Lymphatics of Upper Extremity 698-702
8. Brachial Plexus 927 to Thoracic Nerves 940
9. Surface Anatomy Upper Extremity 1317-1329

The above 118 pages and numerous illustrations should not be studied in numerical order as it is not McGuffy's Fourth Reader. Average intelligence would cause a perusal of Humerus - then ligaments of joint - next the axilla and muscles forming it, and finally its contents from a circulatory, nerve, or lymphatic standpoint etcetera on down the member.

Before this dissection is started, an intimate knowledge of all structures must be had by the student. Considerable reading will be necessary to cover the circulation, nerve supply, musculature and lymph return. The Osteology, including all ligaments of all joints must be known.

DISSECTION OF SHOULDER AND AXILLA

Attachments of axillary fascia, also fascia brachii. Note superficial veins over arm. Clean fascia from pectoralis, major and minor muscles, to the points of insertion, carefully preserving their nerve and blood supply. Clean the fascia from lateral edge of latissimus dorsi muscle and reflect medially. Locate subclavian vein and make an incision over the vein down to center of arm. Remove vein from first rib to center of arm, severing its tributaries. The artery will be found immediately behind the vein. Clean the fascia there from and find all of the branches of the axillary artery, also trace brachial artery to middle of arm, and note its branches and be able to draw and name parts supplied by those branches plus the anastomosis. This has special reference to the anastomosis around the head of the radius and the neck of the scapula. Note the routes the stream sould follow in case any of these arteries are ligated. Next, clean deep fascia from lateral chest wall; carefully following serratus anterior muscle, carefully preserving the intercostal nerves and carry this dissection backwards to its attachment to the scapula. This constitutes the medial wall of the axilla. Immediately under the axillary artery will be found the long thoracic nerve. Trace its branches to the serrations of the serratus anterior, which should follow the long thoracic artery. Continue dissection of the fascia over the subscapularis muscle to its lateral border, carefully preserving the long and short subscapula nerves and arteries. Remove the fascia from the anterior surface of the teres muscles, preserving and noting the arterial and nerve supply. This forms posterior wall of axilla. Now, remove all of the fat and lymph glands carefully, dissecting any vessel exclusive of a vein which crosses the axilla. The remaining tributaries of the axillary veins are now removed and a clean four sided cavity should present itself, showing the arterial supply to the muscle on three sides and the enervation to these same muscles. Abduct the arm and note the position of the apex of the axillary space. At a point over the axillary artery, the origins, the "Y" shaped branches of the median nerve will be found. Medial to this, the ulnar nerve will be seen along the medial cutaneous nerves to the arm and forearm. Immediately behind the artery will be found the broad radial nerve. Note its relation to posterior wall of axilla and dissect upward and find it coming from all of the posterior branches of the brachial plexus. At this point note the origin of the long and short subscapular nerves and the thoraco dorsal nerve following the artery. Trace the radial nerve to a point where it disappears around the arm with the profunda brachii artery. Strip fascia from flexor muscles of forearm and deltoid muscles. Note vein between the pectoralis major and deltoid muscle and note that it pierces delto-pectoral triangle. Now, turn body over, remove fascia from deltoid, teres, and triceps muscles to elbow, taking great care not to injure vessels emerging from triangular and quadrangular spaces. These spaces should be bounded and vessels contained therein known. Find radial nerve from medial surface of arm, note its direction and incise triceps muscle in the direction of the nerve, and locate all branches of said nerve to said muscle, including posterior cutaneous nerve of arm. The muscles over the shoulder must be carefully cleaned and their attachment well worked out or else!! While tracing radial nerve around radial groove demonstrate profunda

brachii artery, including its branches which are shown later in the anastomosis around the elbow joint. As the radial nerve is exposed in its course around the arm, note its cutaneous branches of lateral surface of arm, and note the relation of the terminal branches with regard to the extensor muscles. Make an incision at the level of the surgical neck of the humerus, starting at the posterior edge of the deltoid muscle and extending around the shoulder, showing the axillary nerve. Continue this incision and sever the entire deltoid muscle. Make incision through triceps muscle over course of radial nerve in radial groove and find branches to muscle also branches to entering forearm .

Remove the clavicle, leaving the subclavius muscle intact. Disarticulate the clavio acromial joint. Trace all of the cords of the brachial plexus from above downward. At this time all vessels crossing axilla should be very clearly shown, the fat and fascia having been removed, the suprascapular nerve with its accompanying artery may now be seen. Trace its course through the supraspinatus muscle through the great scapula notch to the infraspinatus. Now note course and relations of (having someone read those while the other man dissets) the ulnar nerve, also the median nerve; likewise the musculo-cutaneous nerve. These nerves are not to be dissected loose, they may be raised for one inch and may be attached for one inch. The biceps muscle may now be demonstrated and reflected laterally to show the course of the muscular cutaneous nerve in the arm. The coraco-brachial muscle with its private nerve supply can be shown. The brachialis origin should be noted with its relation to the corco-brachialis and deltoid muscles. Demonstrate the lateral and medial intermuscular septa. Demonstrate various ligaments of shoulder joint. Note bony structures and ligaments injured in dislocation infraglenoid dislocation, etc. The relations of all structures from the neck to the elbow plus arterial supply plus muscular attachment and action should be definitely known.

Skin, forearm and hand, taking care not to remove cutaneous nerve supply and superficial veins which must be demonstrated. Demonstrate cubital fossa and contents. Clean fascia over the front of the forearm down to muscle, showing the ulnar nerve, median nerve and radial nerve entering forearm. Note attachments of superficial flexors and promators. Trace median nerve by cutting lacertus fibrosus and superficial head of pronator radii and show branches given off median nerve to muscles of forearm. Note radial and ulnar arteries with their recurrent branches. Some of these branches are very small, but must be demonstrated to have an accurate knowledge of the anastomosis around the elbow.

DISSECTION

SHOULDER JOINT:

Demonstrate scapular and clavicular ligaments. Show insertions of subscapularis, supraspinatus, infraspinatus and teres minor muscles. Demonstrate the relation of these tendons to the joint by separating them out to their final insertion on the tuberosities of the humerus.

Detachment of Muscles: Detach the origin of the short head of the biceps muscle and coraco-brachialis muscle, detach the insertion of the subscapularis, supraspinous, infraspinous and teres minor muscles, demonstrating the capsular ligament beneath, cut tendons one inch from attachment.

Transverse Scapular Artery: The scapular portion of this artery can now be dissected crossing the neck of the scapula beneath the muscles.

Completion of Muscle Detachments: Cut the tendon of the latissiums dorsi, teres major and long head of the triceps. This frees all muscular attachment of the arm to the shoulder, or thoracic wall, except the long head of the biceps which should be left attached. Examine the range of motion permitted by the lax ligaments of the shoulder joint.

Joint Cavity: Make an incision in the posterior part of the capsular ligament, examine the joint cavity, its extent and communication with the subscapular bursa, and the internal ligaments of the capsule.

In removing the fascia down to the muscles, note the area of cutaneous veins and nerves, then later remove.

Before taking up the forearm, a good working knowledge should be had of the structures to be encountered. The osteology must be known. The muscles over the front of the forearm will be shown first, four superficial flexors and pronators. Know the attachments plus singular and group actions.

Trace median nerve through pronator muscle, incising upper head of muscle, and show its branches to all the muscles of the forearm. Follow brachial artery through cubital fossa, note terminal and recurring branches. Trace ulnar nerve between heads of FL, Carpi Ulnaris, note its relations to ulnar artery, and note its cutaneous branch in the distal 1/4 of the forearm. Now trace tendons of the previous mentioned superficial flexors and cleanly dissect their attachments!!! noting relations of palmaris longus to volar carpal ligament, and cleanly dissect palmar aponeurosis from underlying structures, being careful not to wound the vagina tendinum of deep flexors.

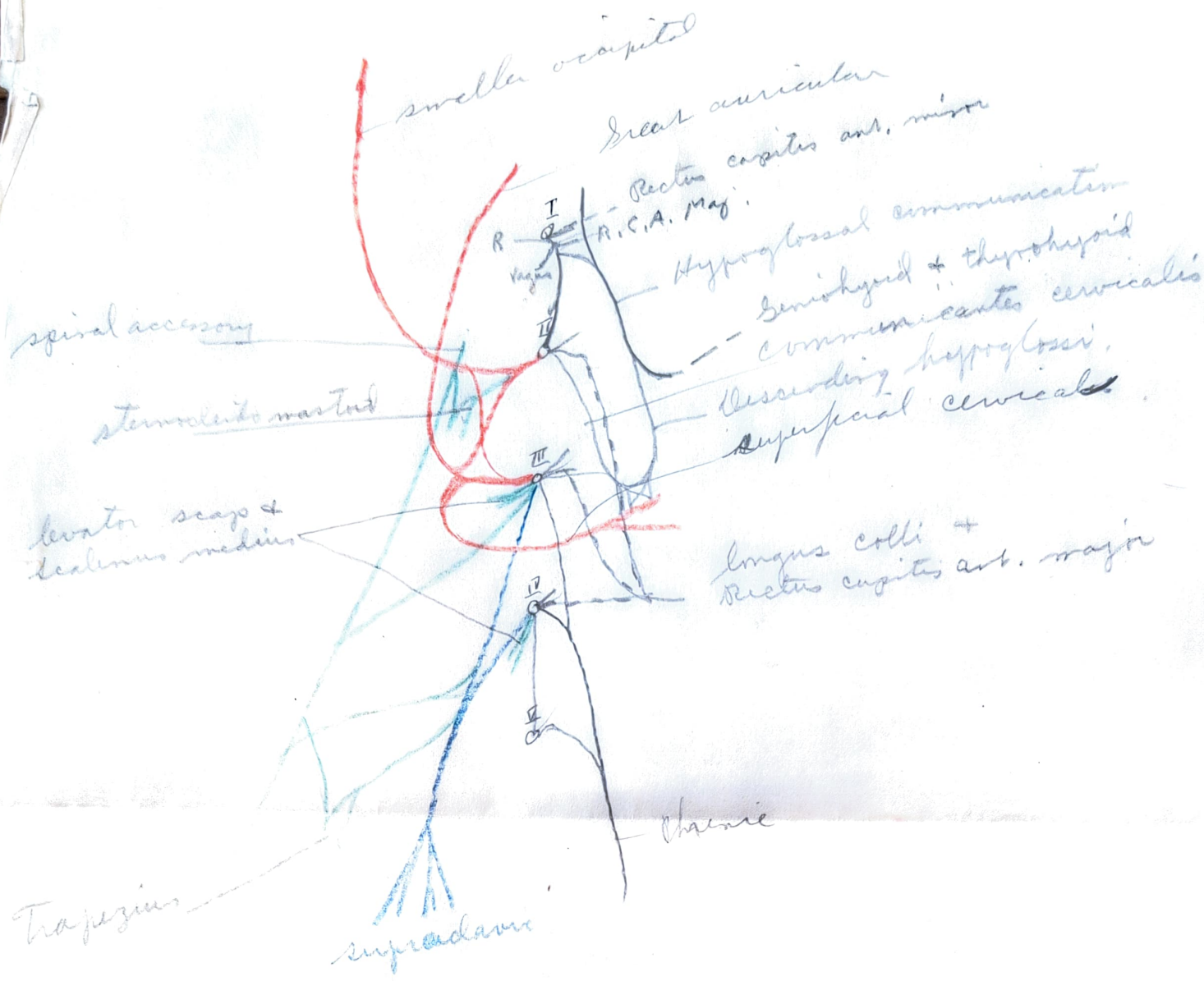
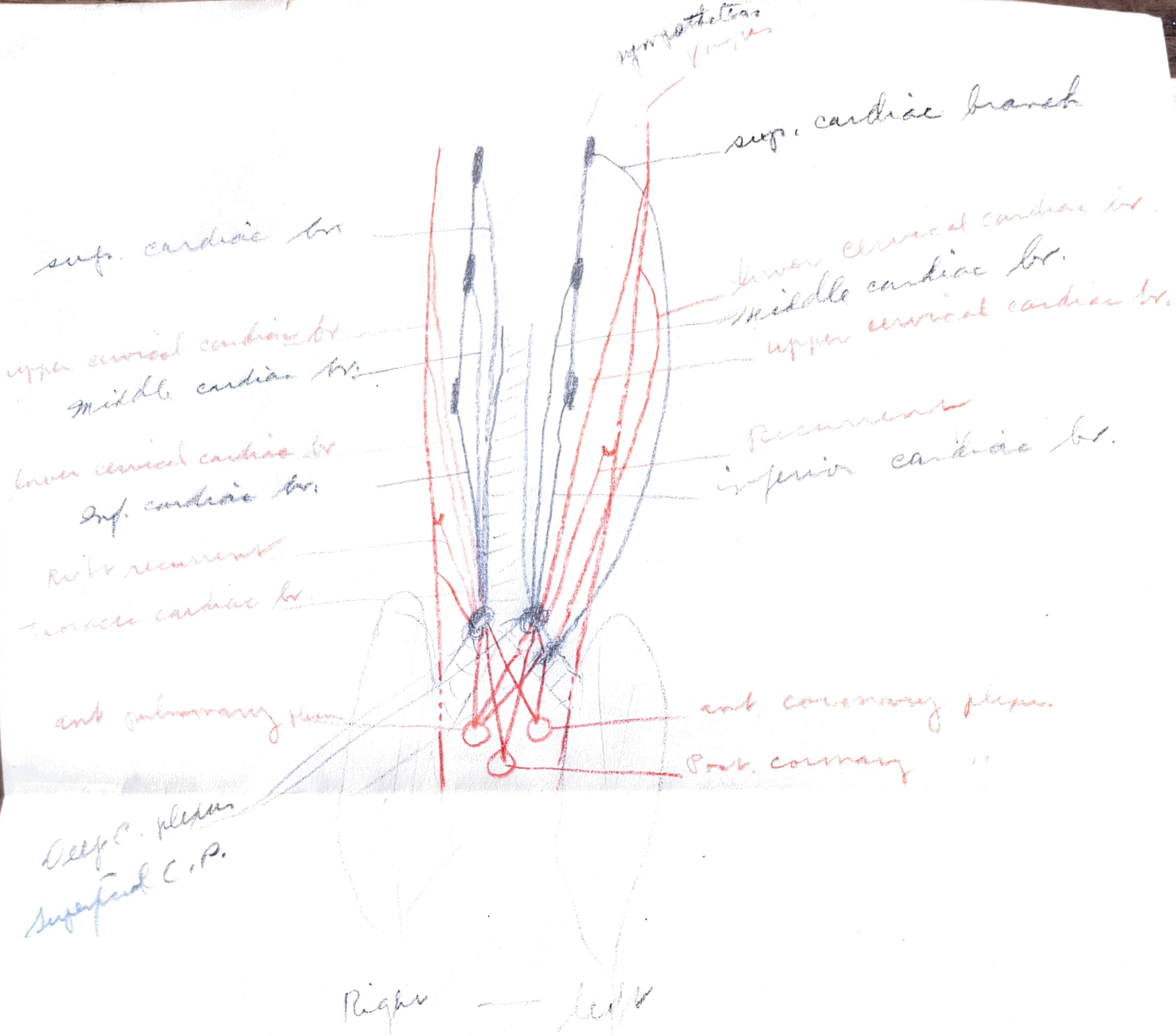
The deep flexors may be severed at different levels, and the interosseous vessels will be seen. Now cut volar carpal lumbricales and interossei muscles. The terminal branches of the ulnar nerve and the median nerve should now show along with the superficial and deep volar arches and terminal arterial branches.

Dissect muscles of thenar eminence and hyper-thenar eminence. Note action of muscles as a whole and preserve the blood and nerve supply.

Study very carefully the vagina tendinum on the front surface of the hand so you will know where an infection will travel with special relation to the part effected.

Dorsum of forearm. Note high attachment of extensor muscles above elbow. These are in relation with the lateral inter muscular septum. Now trace cutaneous innervation of radial nerve and follow deep branch of radial into front arm. Incise supinator muscle over course of radial nerve, and note how said nerve courses down as the dorsal interosseous nerve, following artery of same name, thus supplying all muscles on back of forearm. The cutaneous supply of the radial nerve should be worked out. Clean carefully attachments of all extensor muscles and work with dorsal carpal ligaments, and note openings for extensor muscles, also

be able to name. Work out dorsal interosseoi muscles, cleanly, just for a change.

Note the singular action of all extensor muscles and know group action. Note the dorsal vagina tendinum which is somewhat different from volar.

C. J. Formarack

DISSECTION OF THE FRONT OF THE THIGH

Surface anatomy, bony land marks, outline femoral triangle, outline cutaneous enervation.

Superficial Fascia:

Attachments. Demonstrate two layers over the femoral triangle with the superficial sub-inguinal lumph glands and cutaneous nerves.

Deep Fascia:

Attachments. Iliac portion over Fossa Ovalis pectineus fascia beneath. Trace saphenous vein upward to where it joins deep femoral or blunt dissection down from inguinal ligament to demonstrate edges of said fossa. Show fascia cribrosa.

Find the lumbo inguinal nerve, lateral cutaneous femoral nerve. Find the above in abdomen and trace through the thigh and show anterior and posterior branches. Locate the intermediate and the medial cutaneous branches of femoral with anterior and posterior division of the latter running to the sartorius plexus. Find nerve to pectineus, also saphenus nerve. Find the nerve supply to the four parts of the quadriceps muscle and note how they follow the arteries. Also note proximal and distal branches. Locate the seven branches of the femoral artery and work out the collateral circulation. Demonstrate lateral and medial circumflex arteries, removing veins. Clean the anterior surface of the thigh and show femoral triangle and ilio-pectineal fossa. Show adductor canal from the apex of said triangle to the popliteal space. Contents of canal. Separate parts of quadriceps.

Demonstrate nerve supply and attachments of tensor fascia femorus. Show lateral intermuscular septum directly beneath it.

DISSECTION OF THE MEDIAL PART OF THIGH

Clean out femoral canal and show femoral septum. Demonstrate femoral sheath around the artery and vein. Show free border of lacunar ligament which constricts a femoral hernia. Find femoral ring in abdomen and note boundaries. Open three compartments of sheath, remove the fascia from the gracilis pectineus and adductors. Demonstrate the circulation and enervation of the obturator vessels to the adductors and tract it to the abdomen. Demonstrate an arterial anastomosis, medial and lateral to hip joint. Demonstrate circulation around knee joint, also ligaments of knee joint. The adductor muscles may be cut transversely distal to the arterial and nerve supply and at this point note the medial inter-muscular septum with surrounding relations.

Identify perforating arteries; trace them through to anterior surface to thigh. Do likewise with medial circumflex artery which was found beneath quadratus femorus muscle.

Popliteal Fossa. Superficially the posterior femoral cutaneous nerve has been traced across this space (???) perhaps. Find the small saphenous vein piercing the fascia to join the popliteal vein.

Deep Dissection: Boundaries, floor and covering of said fossa.

Sciatic Nerve: Follow down to terminal divisions. Posterior tibial and common peroneal and show enervation to muscles and region of articular branches to knee.

Popliteal Vessels: are the deepest structures in the fossa. Look for the geniculate branch of the obturator nerve in close apposition to artery. Dissect branches of artery and vein and show articular branches lying on bone.

Recall that the popliteal artery and vein are continuation of femoral vessels of the anterior thigh which have passed through adductor canal and hiatus tendineus.

HIP JOINT DISSECTION

Note: This should be the last step in the thigh dissection. Only a few muscles remain attached between the pelvis and femur.

Hamstring Muscles: Detach from their origin from the tuberischii, including the portion of the adductor magnus having an origin here.

Ilio-psoas Muscle: cut across it near its insertion on the lesser trochanter. Reflect it anterior away from the anterior surface of the joint capsule, noting the bursa beneath.

The Pyriformis and obturator externus muscles remain to be cut at their tendinous insertion, after which considerable motion at the hip joint should be possible. Examine the surfaces of the joint uncovered, especially the direction of the fibers on the anterior surface. Make an incision in the posterior capsule and experiment with dislocation of the head through the incision.

Text: And a little child shall lead them.

C.J.F.

GLUTEAL REGION

This has been largely uncovered from previous dissection. Note gluteal fold does not correspond to the lower border of gluteal maximus. Bony land marks are crest of ilium with anterior and posterior spines. Great trochanter of the femur and the tuber ischii are important in diagnosis around the hip joint, as point midway between is course of sciatic nerve.

SUPERFICIAL FASCIA

Attachments. Deep fascia very dense and important laterally. Demonstrate glutei muscle. Attachments with accompanying vessels. Show posterior cutaneous nerve of thigh emerging from lower border of glut max. Remove gluteus maximus. Notice its attachment to sacral tuberous ligament.

Compare the regions at this time with similar surface of pelvic bones. Imagine the body in upright position. Find vessels emerging from above pyriformis muscle.

Region below the pyriformis muscle. Six nerves and two arteries emerging between it and the gamelli through the great sciatic notch.

NERVES

(1) Sciatic (2) posterior gemoral cutaneous, (3) Pudendal, (4) Inferior gluteal (5) Obturator internus, (6) Quadratus femorus, Arteries. Inferior gluteal and internal pudendal.

At this time the pudendal vessels have been traced into the perineum so merely find branch of posterior femoral cutaneous nerve. Detach tendons of obturator internus, gemilli and quadratus femorus. This uncovers the capsule of the hip joint, the tendon of the obturator externus, termination of the medial circumflex artery and the insertion of the iliopsoas muscle.

Region above pyriformis: The structures include the tensor fascia lata, glutei vessels and muscles. Fascia of tensor femorus may be removed to show muscle between the layers near anterior spine.

DEEP DISSECTION

Divide gluteus medius along the line of deep division of the superior gluteal artery as this artery separates the medius and minimus. Trace the above mentioned arteries and nerve. Detach gluteus minimus from its origin to expose capsule of the hip joint and the reflected tendon of the rectus femoris muscle. Note the termination of the ascending branch of the lateral circumflex artery beneath the tensor fascia femorus muscle. This is important in collateral circulation.

POSTERIOR THIGH REGION

Trace posterior femoral cutaneous nerve to the termination. Separate hamstring muscles preserving nerve and arterial supply.

DISSECTION OF BACK

A THOROUGH working knowledge of the back is essential before any dissection should be done. This entails close study over a period of several hours. Remember you may be quizzed at any time on the parts being dissected by anyone connected with the department. Clean neat dissections are imperative and the department will absolutely not tolerate any other kind of work. In case you are in trouble notify anyone of the prosectors. All structures given below must be worked out neatly and demonstrated. The students will stand while working and two will dissect and the other two will read and give references.

In dissection of a muscle, clean it to its bony attachments and not half way!!!! Any vessel should not be freed in its entirety as relations will be lost. Merely pick up vessel and clean for an inch then allow it to be normally attached for one inch, etc.

Surface Anatomy - Spine of Scapula - Note articulation with clavical. Seventh cervical spine ligamentum nuchae, external occipital protuberance. Superior curved line. Spines of vertebrae. External lip of ileum. Palpate ribs, and medial border of scapula, also axillary border, - angles of scapula and ribs covered.

Incisions - Seventh cervical spine, mid line to 5th lumbar spine. From 7th spine laterally to acriomiun process. Sixth thoracic spine laterally to posterior axillary line from fifth lumbar laterally four inches. Reflect flaps laterally, hugging skin and leaving any fat attached to the deeper structures. This is the superficial fascia and the posterior spinal nerve segments should be isolated and traced to their terminations before the fat is removed. The deeper muscles covered by the deep fascia are now in evidence. Note deep fascias bony attachments and spread a few muscle fibers and demonstrate it in piercing the muscle. By blunt dissection raise the lateral edge of the trapexius muscle to its origin. Now incise muscle half inch from its origin and reflect laterally. Demonstrate triangle of oscultation.

The Rhomboids are now in view, as is also the high origin of the latissimus dorsi. Incise latissimus dorsi one inch from mid line and reflect laterally taking care to preserve serratus posterior inferior muscle. The origin of this muscle is to posterior layer of the lumbo-dorsal fascia.

Work out serratus and note attachments. Split rhomboid one inch from origin and note attachments.

The Sacro-Spinalis muscle is now uncovered. Work out its three series of muscular insertion. Also find motor nerves in thick part of muscle. On one side remove said muscle and show the rotators, inter-spinalis, inter-transverse, inter-costals, - anterior layer of lumbo-dorsal fascia in front, note common origin of abdominal muscles. Demonstrate external inter-costal muscle. Make incision between ribs and locate inter-costal vessels. Clean infra-spinatus muscle and also clean origin of supraspinatus muscle. Work out lower border of deltoid muscle to posterior axillary line.

DISSECTION OF FACE AND SCALP

All Structures to be located having been previously studied - there remains only the dissection of those structures. Work out Ext. maxillary-artery and accompanying veins, the latter being very important due to communication with veins in Skull case. Fasciaes of Face practically non-existent and of little importance. Try and locate some of previously mentioned Lymphatics over face. Locate superficial temporal vessels taking care not to destroy facial nerve branches.

In order to show muscles of expression - use scissors and remove fat and trim edges - also clean fat from vessels leaving any lymphglands intact.

Review Paratoid gland and duct - show latter over masseter muscle and note F. Colli splitting and forming sheath of gland. Find facial nerve emerging from Stylo-mastoid foramen and entering gland - remove gland piecemeal and trace nerve through it and over face to muscles. Demonstrate all branches.

Now work out vessels from orbital and mental foramina and clean well. These are terminals of Trigeminal nerve. Show buccinator muscle then clean heavy fascia from temporal muscle and trace under zygomatic arch. Split massetor and show jaw articulation. Clean pterygoid from below and know muscles of mastication. Show layers over scalp also great occipital nerve with vessels. At this point the skull cap will be removed by an associate and the fissures - convolutions - lobes - arterial and venous circulation with various cranial nerves must be demonstrated by the student. This is imperative for an understanding of physiology.

The eye may now be worked out - an assistant will remove organ and muscles and vessels may be seen.

READING ASSIGNMENTS FOR DISSECTION OF HEAD AND NECK

Surface Anatomy of Head and Neck	1280-1297
Muscles and Fasciae of Head	375-394 ✓
Arteries of Head and Neck	553-584 ✓
Veins of Exterior of Head and Face	644-660 ✓
Lymphatics of Head and Face and Neck	692-698 ✓
Cranial Nerves	879-913 ✓
Cervical Nerves	922-929 ✓ (Infra Claviculor Branches)
Sympathetics	964-969. 973-977 ✓
Accessory Organs of Eye	1013-1022 ✓
Review External Ear	1026-1052 ✓
Read The Larynx	1066-1078 ✓
The Mouth, Pharynx - Esophagus	1104-1140 ✓

Anatomy

Muscles of iliac region to muscles of gluteal region --464-72 ✓✓
Arteries of lower extremity - - - - - - - - - 624-632 ✓✓
Veins of lower extremity - - - - - - - - - 670-673 ✓✓
Lymph vessels of legs - - - - - - - - 702-704 ✓✓
Lumbo-sacral plexus - - - - - - - - - 944-953 ✓✓

Muscles of gluteal region - - - - - - - - 472-479 ✓✓
Osteology - femur, tibia, fibula - - - - 238-258
Lig. - hip & knee joints - - - - - - - - 331-347 ✓✓
Sacral & coccygeal plexus - - - - - - - - - 952-964 ✓

337-58
252-75 ✓
479-95 ✓
632-40 ✓
672-73 ✓
956-64 ✓
1329-42 ✓

DISSECTION OF THE NECK

Venous return--anterior and external jugular veins, note tributaries and termination, also note anterior draining into subclavian behind sterno-mastoid muscle. Clean and remove the above, plus any additional areolar tissue.

Landmarks. Supra sternal notch, hyoyd bone, thyroid cartilage, symphysis menti. Note fascia colli with attachment and reflections. Demonstrate. Open it in midline chin to sternum and show supra sternal space and any superficial lymph glands. Remove platyma and see the cutaneous colli nerve plus its communications with the facial, etc. Split the fascia over stern mastoid and reflect both ways, while noticing its thick character over the anterior border of the muscle. Show the sternal and clavicular parts of the muscle, then cut them one inch above and parallel to the clavicle and trace the lower origins down to the bone, also dissect the muscle upward leaving the fascia beneath it thus protecting the ansa hypoglossi. Show the blood vessels supplying the sterno mastoid muscle. Find the ennervation to the lateral borders of the infra hyoid muscles and trace back to the fascia over the carotid sheath and find the ansa. Sever the said muscles transversely below their nerve supply and trace up and down to their attachments. Notice omohyoid muscle but do not cut. These muscles form the anterior relations of the throid gland which will now be in view and the capsule of which is pretrachial fascia. Work out its lobes and isthmus and find the circulation in both poles also a branch of the vagus going into the upper pole. Raise the lobes medially, and find the parathyroids and at the same time see the posterior relations of the gland. Locate recurrent nerves in the groove between the trachea and the esophagus. Locate thyrohyroid muscles with its ennervation.

Open coratid sheath and trace up branches forming ansa to cervicals and hypoglossal nerve which will be found in di-gastric triangle. Read it before locating. After study of tributaries of deep jugular remove them also deep jugular and find the vagus in the sheath and work out its branches in the neck. Read first then try and locate sympathetic trunks in the neck which will be behind the sheath. Now find scalenus muscle with the phrenic nerve running on it and note the cervical and brachial nerve trunks, immediately back of it below and the longus capitis above. Cut the trapezius from the clavicle and locate lower belly of omohyoid. Find the nerve to the subclavius muscle also the communicating nerve with the subclavius muscle also the communicating nerve with the phrenic from the fifth cervical and the nerves to the scalenus anterios and longus colli. These are all supra-clavicular anterior branches of the brachial plexus-the anterior branches of the cervical plexus having been worked out.

The dorsal scapular nerve has already been found. Locate the supra scapular nerve coursing the posterior triangle with the artery to finally disappear in the lesser scapular notch. Demonstrate long thoracic nerve coursing the posterior triangle above the brachial chords and disappearing under the axillary artery in the axilla. Find thoraco dorsal nerve. These are all supra clavicular posterior branches of the brachial plexus. Now note the relation of all transversely coursing arteries to the brachial cords, also find five and six joining into one, seven alone, and eight and one joining. These are all closely related with the cupola and if you don't believe it, feel below and see if Sherman is right. Now find anterior thoracic nerves

piercing costo-coracoid membrane from above and find pre vertebral fascia fusing with it. The subclavian artery with the Vein in front can now be demonstrated. At this point the clavical will be removed leaving the subclavius muscle intact. Note the deep cervical glands along the subclavian artery and the carotid and try and figure out the parts they drain. Just try it.

Sub-mental region. Find the digastric and stylo-hyoid and mylo hyoid muscles. Locate sub-mental lymph glands and the sub-maxillary gland and demonstrate its fascia colli capsule. Laterally find the inferior constrictor muscles and longus capitis. Work out cleanly then cut the mylo hyoid muscle and geniohyoid and hyoglossus also style glossus muscle. The hypoglossal nerve with its branches may now be clearly seen. Look for the external maxillary artery with its branches, the lingual artery and find the sub-lingual glands.

DISSECTION OF THE BACK OF THE NECK

Midline incision, eighth cerivcal spine to external occipital protuberance to the vertex and reflect laterally two inches. Also reflect laterally over trapezius muscle to its anterior border. Find the occipital artery and great occipital nerve. Sever trapexius muscle one half inch from the midline and reflect both ways leaving the anterior border attached to the structures beneath it. Bluntly raise edges of splenius capitis and cervicis and cut one inch from the midline. Cut serratis posteri superior and rhomboids one inch from midline and reflect. Semi spinalis capitis is now in view. Raise it and find the muscles bounding the sub occipital triangle and note its contents. Now locate ilio costalis dorsi and cervicis and trace up to the bony attachment, treat longissimus dorsi likewise and medial to it the capitis part of the same muscle. Now find scalenus posterior and the levator scapulae will be over it. Be careful of its nerve supply and demonstrate. (The scalenus posterior is the key to the cervical nerve trunk.) Find them with their branches. The external or lateral series to the levator scapulae trapexius etc. Find the phrenic nerve from the fourth cervical. Note the transverse cervical vessels and find the dorso scapular nerve to the rhomboids with the descending branch of the transverse celli. Over the floor of the posterior triangle demonstrate the two deep fascias. Colle above and prevertebal beneath with the transverse scapular and cervical vessels and lateral cervical motor nerves and spinal accessory nerve coursing the posterior triangle between said two layers. Demonstrate the muscles forming the floor of this triangle also any superficial lymph glands plus ascending and descending cutaneous cervical ennervation.

Anatomy

Muscles and tissues of abdomen — 406 – 418 ✓ ✓ X
Superficial epigastric Artery — 629 ✓
" circumflex Iliac ✓
" " Vein
" epigastric "
" internal circumflex vein
Parietal lymph glands — — — — 704 ✓ ✓ X
Lower thoracic nerves — — — 944 ✓ ✓ X
Ilio hypogastric nerve — — — 946 ✓ ✓ X
" Inguinal " — — — 949 ✓ ✓ X

The abdomen — — — — — 1140 – 1155 ✓ ✓ X

Small intestine — — — — 1162 – 1170 ✓ ✓ X

Surface markings — — — — — 1309 – 1315 ✓

Sup. Mesenteric — — — — 607 – 610 ✓ ✓ X

Portal system — — — — — — 680 – 682 ✓ ✓ X

Lymp of abdomen + Pelvis — — — — 704 – 715 ✓ ✓ X

Stomach — — — — — 1155 – 61 ✓ ✓ X

Liver — — — — — — 1181 – 91 ✓ ✓ X

Spleen — — — — — — — 1275 – 79 ✓ ✓ X

Pancreas — — — — — — — 1191 – 96 ✓ ✓ X

Large intestine — — — — — 1170 – 81 ✓ ✓ X

Sympathetics — — — — — — 978 – 84 ✓ ✓ X

Abdominal aorta — — — — — 603 – 17 ✓ ✓ X
Kidneys — — — — — — — 1208 – 18 ✓ ✓ X
Ureters — — — — — — — 1218 – 19 ✓ ✓ X
Bladder — — — — — — — 1220 – 26 ✓ ✓ X
Genital organs — — — — — 1244 – 59 ✓ ✓ X
" " — — — — — 1208 – 44

Lumbar Plexus - - - - - - - - - 944-53 ✓ ✓ X

Muscles and fascia of pelvis - - - - - 418-22 ✓ ✓ X
-30

Common iliac artery - - - - - - - - - - 613-22 ✓ ✓ X

Lymphatics - - - - - - - - - - - - 710-15 ✓ ✓ X

Veins of abd. + pelvis - - - - - - - - 673-80 ✓ ✓ X

Pudendal Plexus - - - - - - - - - - - 962-64 ✓ ✓ X

Os Coxal - - - - - - - - - - - - - - 227-38 ✓ ✓ X

Perineum - - - - - - - - - - - - - - 422-29 ✓ ✓ X

Thoracic aorta may now be easily shown with its branches - anterior longitudinal ligament. Show diaphragm noting its origin and phrenics entering it.

READ: Surface Anatomy Thorax and Surface Markings of Heart etc. 1301-07

- Muscles connecting upper extremity to anterior and lateral chest wall. 433-37
- Platysma muscle, 385. Mammary gland, 1260.
- Subclavius muscle, 436 Thorax as a whole, 112-24
- Supra clavicular nerves, 925. Sternum and ribs.
- Int. Mammary artery and branches, 585.
- Highest thoracic, thoraco acromial, and lateral thoracic arteries 588-9. Also tributaries framing axillary vein and int. mammary veins.
- Lymphatics of thorax, 715-20.
- Ant. Thoracic nerves, 930.
- Trachea bronchi pleura lungs, 1079-1094.
- Anterior divisions of thoracic nerves, 940-44.
- Phrenic nerves, 925.
- Cervical Sympathetics, 974.
- Thoracic Sympathetics, 977.
- Cardiac Plexus, 978-80.
- Vagus nerve, 907-10
- Arteries, 547-553
- Thoracic Aorta, 599-603
- Thoracic cavity, 524-25.
- Pericardium and heart, 525-546, re-reading fetal circulation, etc.
- The veins, 641-43
- Veins of Thorax, 664-668
- ~~Lymphatics of thorax, 715-20.~~
- Thoracic duct, 690-92
- Esophagus, 1138-40.

READING

Vertebral column to thorax, Page 92 to page 112.
Articulation of the vertebral column, Page 283 to 293.
" " " " " with the pelvis, Page 302.
" " " " " with the heads of the ribs, Page 295 to 298.

Read, Ribs, page 119-124.
Ligaments of the heads of the ribs, page 309-313.
Claviole and scapula, page 196 to page 205.
Myology, page 359 to 375.
Fasciae of the back superficial and deep, read the following muscles: latissimus dorsi, trapezius, serratus, posterior, superior, and inferior, rhomboids, sacre-spinalis with its three divisions and the rotators inter-transverse, etc.
As the muscles are studied and the blood supply and nerve supply are given, look them up.
Intercostal nerves and vessels.
Posterior division of the spinal nerve, page 918 to 922.
Triangle of auscultation and petits triangle.
Surface anatomy of back, pages 1297 to 1301.

DISSECTION OF CHEST

SURFACE ANATOMY - Landmarks - clavicle - sternum - ribs - anterior axillary fold - ensiform - costal cartilages - palpate and mark out with pencil. Also mark lines of pleura - fissures of lungs - heart - great vessel area, etc.

INCISIONS - Tip of clavicle to supra sternal notch - mid sternum to ensiform - follow costal cartilage ten rib and reflect laterally to anterior axillary line - use care not to sever platysma and descending branches of cervical plexes over clavicle. Find Delto pectoral triangle - contents. Demonstrate perforating branches of int. mammary artery and perforating nerves - clean muscle fascia - leaving small area of skin around nipple intact for landmark - incise muscle 2" from Sternal origin and reflect both ways - taking care above not to destroy costo caracoid membrane also noting and preserving nerve and blood supply beneath and not reflecting laterally beyond ant. axillary line. Show intercostal muscles - digitations of serratus anterior, External oblique, and recti muscles - at this time Sternum and ribs will be cut and lifted up by an associate.

Visualize lungs at rest - edges and fissures - insert hand in chest - break any adhesions gently - find line of pleural reflections - root of lung - apex-base and various surfaces of lungs - loosen mediastinal surface and have lungs in condition so they may be removed by prosector, (the hilus will be cut long so pulmonary plexuses may be demonstrated). Identify indentations on lungs - structures in hilus - fissures etc. Notice superior mediastinum and pericardium and phrenic nerves and vessels. Internal intercostal muscles. Remove parietal pleura from ribs - show arteries, veins and sympathetic chain - also splanchnics, use care over superior mediastinum. Show azygos venous system. Show fine nerve fibres over esophagus and aorta. Find vagus nerve along superior mediastinum covered with pleura - preserve its branches - remove mediastinal pleura - trace branches down to cardiac plexuses. Clean anterior mediastinum - clean fat very carefully from superior mediastinum and expose large veins. This fat is remains of Thymus gland. Study location of pericardium - a window will be cut in it for you - note visceral and fibrous layers - pull heart thru and study - show cerviacl sympathetic branches in thorax. Demonstrate various structures on heart, also in chambers - superficial and deep cardiac plexuses must be worked out before heart will be removed by an associate. Remove muscle window and show deeper muscular layers. Visualize pericardial picture from interior then remove it carefully (serous layer). Clean fat and glands from roots of great vessels - show trachea and esophagus and review structures over cupola pleura.